

SUPPLEMENT TO TIROLE (2011)

Tirole (2011) overviews issues related to the liquidity in the banking sector. In the words of the author: “The recent crisis was characterized by massive illiquidity. Financial institutions and industrial companies scrambled for cash by selling assets at fire prices. Central banks injected unprecedented amounts of liquidity into the system.” (Tirole (2011)) The current debate on regulation focuses on avoiding a repeat of this episode.

The first message of the paper is that liquidity is hard to measure. This is the case because banks have different sources of liquidity, and because a host of factors concur in determining the availability of liquidity.

Banks have two main sources of liquidity: **funding liquidity** and **market liquidity**. **Funding liquidity** refers to the liability side of the balance sheet: it includes issuing new wholesale deposits, long term bonds, and equity. Tobin (1982) and Diamond and Dybvig (1983) deal with issues related to funding liquidity. The possibility to resort to **funding liquidity** depends on the quality of the bank corporate governance (better governance attracts more wholesale depositors) and on the ease with which current claims can be renegotiated (issuing new liabilities is equivalent to diluting the existing claim-holders, and in some circumstances it requires the consent of the existing claim-holders). **Market liquidity** has to do with the asset side: banks can ensure liquidity by keeping liquid assets such as treasury bills (T-bills) that can be easily traded for cash or used as collateral to obtain loans.

Other factors that concur to determine the liquidity position of a bank are its **risk management** and its **reputation risk**. Risk management determines to what extent the bank’s returns are insulated from shocks beyond a bank’s control. To understand why risk management matters in determining the liquidity available to a bank, you should consider that instruments to manage risk such as interest rate swaps, exchange rate swaps, or credit default swaps are a source of contingent liquidity. These instruments promise to provide liquidity when a set condition is

met. Banks hold swaps to have a source of liquidity in case their liquidity needs are unusually high. Banks also face “reputation risk”. Banks might have obligations that are not legally binding but are based on a bank’s need to maintain reputation (e.g. investment banks bailing out clients from the losses they incurred on investments arranged by the investment bank¹). These obligations might be important in assessing the need for liquidity of a bank but by their very nature they are difficult to assess.

DEMAND FOR LIQUIDITY (THE REST OF THE NOTES IS OPTIONAL AND WILL NOT BE PART OF THE EXAM MATERIAL)

Tirole (2011) discusses inefficiencies in the banks’ demand for liquidity. Banks, exactly as companies, need liquidity because revenues and expenses are not synchronized. Two strategies are available to obtain liquidity: **finance-as-you-go** and **liquidity hoarding**. The first involves going to the financial markets or borrowing from investors when the need for liquidity arises. **Finance-as-you-go** would work smoothly in a world of perfect markets. In such a world, as long as a company is solvent in the long run, it would always find sources of liquidity to finance short run expenses. Market imperfections, asymmetric information, and transaction costs make the **finance-as-you-go** system not always viable and force firms and banks to hoard liquidity. Liquidity can be hoarded directly (for example by limiting the share of short term debt) or indirectly (e.g. by securing credit lines from banks or other companies). As we saw in Diamond and Rajan (2011), when banks hoard liquidity they face a trade-off between insurance against liquidity shock and investment in illiquid, high-return, long term investments.

Past bank regulation (e.g. Basel I and Basel II) has focused on solvency and excess leverage, but the financial crisis has introduced a new issue: should liquidity be regulated together with solvency? New bank regulation, such as Basel III, has introduced liquidity ratio requirements, and a dynamic approach to liquidity measure, based on stress tests (simulations of hypothetical scenarios), has gained popularity.

SUPPLY OF LIQUIDITY

¹This example is taken from Duffie (2009) “The Failure Mechanics of Dealer Banks,” Journal of Economic Perspectives.

Tirole (2011) also considers inefficiencies in the market supply of liquidity. The main issue here is the so called **buyers' strike** (referring to the buyers of banks' assets - which are the suppliers of liquidity). The authors focus on the securitization market to discuss an example of **buyers' strike**.

Securitization is the process of taking an illiquid asset and, through financial engineering, transforming it into a security. Securitization can be useful as it allows issuers to raise cash and finance new projects. When matched with scrutiny from buyers and rating agencies, securitization is a way to certify past investments and turn illiquid assets into liquid tradable securities. At the same time, securitization generates a lot of issues of asymmetric information. For example, issuers suffer from moral hazard when they know that they will sell rather than keep the financial instruments they generate.

Securitization can suffer from freezes that can be explained with the insight from Akerlof's lemons market. The idea is that in markets in which the quality of the products sold is known only to sellers, whenever buyers revise downward their evaluation of the products for sale, the sellers of high quality products are the first one to refuse to sell at the new, lower price. This, in turn, makes buyers further revise downward their expectation about the quality of the products for sale, and results in an even lower price. The price decrease drives out of the market the highest quality sellers left in the market, which in turn makes the price decrease even more, and so on, until only the lowest quality products are traded.

In a similar fashion, a market can also be affected by news about the perceived motives for selling. If banks are expected to hoard a lot of liquidity, buyers are afraid that assets are securitized and sold because they are of low quality, not because banks need cash. As a result, securitization is not profitable and banks are indeed forced to hoard liquidity rather than resorting to the market. A different equilibrium can arise in the same market. If buyers expect banks to have little liquidity, they believe the securitized assets are indeed of good quality, and securitization is profitable for the banks, leading them to indeed hoard little liquidity.

It should be clear from this example that the market for liquidity, due to the asymmetric information intrinsic in it, can suffer for self-fulfilling freezes, or **buyers' strikes** even when banks

have valuable securities and there are investors that would be willing to buy those securities if they could be certain about their quality.